

CONTENTS

PREFATORY

- The Theory of Real Materials, *Marvin L. Cohen* 1

FROM MATERIALS TO DEVICES: SCALING AND INTEGRATION

- Copper Metallization for High Performance Silicon Technology,
R. Rosenberg, D. C. Edelstein, C.-K. Hu, and K. P. Rodbell 229
- The Properties of Ferroelectric Films at Small Dimensions,
T. M. Shaw, S. Trolier-McKinstry, and P. C. McIntyre 263
- IC-Compatible Polysilicon Surface Micromachining, *J. J. Sniegowski
and M. P. de Boer* 299
- SiGe Technology: Heteroepitaxy and High-Speed Microelectronics,
P. M. Mooney and J. O. Chu 335
- Advances in In Situ Ultra-High Vacuum Electron Microscopy:
Growth of SiGe on Si, *Ruud M. Tromp and Frances M. Ross* 431
- Mechanisms for Enhanced Formation of the C45 Phase of Titanium
Silicide Ultra-Large-Scale Integration Contacts, *J. M. E. Harper,
C. Cabral, Jr., and C. Lavoie* 523
- Synthesis and Characterization of Monodisperse Nanocrystals and
Close-Packed Nanocrystal Assemblies, *C. B. Murray, C. R. Kagan,
and M. G. Bawendi* 545
- Extremely High-Density Longitudinal Magnetic Recording Media,
Dieter Weller and Mary F. Doerner 611
- Low Dielectric Constant Materials for ULSI Interconnects,
*Michael Morgen, E. Todd Ryan, Jie-Hua Zhao, Chuan Hu, Taiheui Cho,
and Paul S. Ho* 645
- Device Innovation and Material Challenges at the Limits of CMOS
Technology, *P. M. Solomon* 681

CURRENT INTEREST

- Tribochemical Polishing, *Viktor A. Muratov and Traugott E. Fischer* 27
- High- T_c Superconductivity in Electron-Doped Layered Nitrides,
Shoji Yamanaka 53
- Holographic Polymer-Dispersed Liquid Crystals (H-PDLCs),
T. J. Bunning, L. V. Natarajan, V. P. Tondiglia, and R. L. Sutherland 83

Optical Generation and Characterization of Acoustic Waves in Thin Films: Fundamentals and Applications, <i>John A. Rogers, Alex A. Maznev, Matthew J. Banet, and Keith A. Nelson</i>	117
Structure Evolution During Processing of Polycrystalline Films, <i>C. V. Thompson</i>	159
Mechanical Behavior of Metallic Foams, <i>L. J. Gibson</i>	191
Ultrathin Diffusion Barriers/Liners for Gigascale Copper Metallization, <i>A. E. Kaloyeros and E. Eisenbraun</i>	363
Magnetocaloric Materials, <i>K. A. Gschneidner, Jr. and V. K. Pecharsky</i>	387
Layered Magnetic Manganites, <i>T. Kimura and Y. Tokura</i>	451
The Electronic Structure of Semiconductor Nanocrystals, <i>Al. L. Efros and M. Rosen</i>	475
INDEXES	
Subject Index	699
Cumulative Index of Contributing Authors, Volumes 26–30	729
Cumulative Index of Chapter Titles, Volumes 26–30	731